

REMARKS

In accordance with the foregoing, claims 1, 5, 7, 19, and 20 have been amended. Claims 1-20 are pending and under consideration. No new matter is presented in this Amendment.

DOUBLE PATENTING

On pages 2-3 of the Office Action, the Examiner provisionally rejects claims 1-20 under the judicially created doctrine of obviousness-type double patenting over claims 1-20 of copending U.S. Patent Application No. 10/806,107. Since U.S. Patent Application No. 10/806,107 has not yet been issued as a patent, and since claims 1-20 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer or arguments as to the non-obvious nature of the claims would be premature. MPEP 804(I)(B). As such, it is respectfully requested that the applicant be allowed to address any obviousness-type double patenting issues remaining once the rejections of the claims are resolved.

REJECTIONS UNDER 35 U.S.C. §102:

In the Office Action at pages 3-4, the Examiner rejects claim 19 under 35 U.S.C. §102 in view of Maeda et al. (U.S. Patent No. 5,144,601). This rejection is respectfully traversed and reconsideration is requested.

By way of review, Maeda et al. suggests using a laser to heat domains and a magnetic head to impart information in the heated domain on a magneto-optical memory medium. As such, Maeda et al. does not suggest optically recording the data. However, even assuming arguendo Maeda et al. teaches optically recording data, Maeda et al. discloses that the data is magnetically written after the laser heats a writable domain using a continuous write beam W and erases previous marks using the laser to heat the erase domain according to a pulse erase beam E. As shown in FIG. 4D, the pattern for the pulsed erase beam E begins and ends at a low power and does not begin with the high power. Further, there is no suggestion of a pulse between the pulse erase pattern E and write beam W. Therefore, it is respectfully submitted that Maeda et al. does not disclose or suggest, among other features, "a recording waveform generating unit generating a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data, and a second multi-pulse having a plurality of second pulses to form the erase pattern in response to the second level of the input data and having a power level of a leading one of the

second pulses of the erase pattern set to be a high level of the second multi-pulse and a power level of pulse between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is set to be a high level of the second multi-pulse" as recited in claim 19.

REJECTIONS UNDER 35 U.S.C. §103:

In the Office Action at pages 4-9 and 12-13, the Examiner rejects claims 1-5, 9-14, 16-18 and 20 under 35 U.S.C. §103 in view of Ichihara (U.S. Patent No. 6,396,792). The rejection is respectfully traversed and reconsideration is requested.

On page 5 of the Office Action, the Examiner acknowledges that Ichihara does not suggest an erase pattern in which a leading pulse is a low power level, and a trailing pulse is of a high power level. However, the Examiner asserts that such a modification would have been obvious since Ichihara suggests using other power levels lower than the recording level P_a , and especially since Ichihara suggests in col. 11, lines 16-25 that one needs to consider the properties of the recording layer and the laser in order to determine the appropriate level.

Even assuming arguendo Ichihara suggests using other power levels as asserted by the Examiner, Ichihara does not suggest using an erase pattern with a different pattern as opposed to power levels for the same pattern. Thus, Ichihara does not suggest a high power trailing pulse in combination with a low power lead pulse or low power lead and trailing pulses.

As is evident from FIGs. 3 and 4 as explained in cols. 8 - 9, the multiple pulses are used to more accurately form erasures. As shown, when initiating an erasure, Ichihara suggests alternating between high and low pulse powers P_{c1} , P_{c2} in order to alternately promote crystallization growth and nuclei formation. Ichihara teaches that the alternating powers P_{c1} , P_{c2} are due to the different temperatures at which crystals grow and nuclei are generated as shown in FIG. 3. By starting off with a high pulse P_{c1} during the initial period T_{c1} as shown in FIG. 4, nuclei are formed and then grown in order to ensure an accurate beginning to the erasure. Moreover, by ending at the low pulse P_{c2} , the erasure ends more accurately without extending into the adjacent mark. As such, this pattern is consistent with the desired temperature profile C shown in FIG. 4. As set forth in col. 9, lines 25-31, this pattern as shown in FIG. 1B is used in order "to ensure the effects of the present invention." As such, assuming arguendo that different levels for P_{c1} and P_{c2} can be used, Ichihara does not suggest changing the pattern that the first pulse should be at a low power level P_{c2} (thereby delaying the initiation of the erasure pattern) or that the last pulse be at a high power level P_{c1} (thereby extending the erasure pattern into the adjacent mark). As such, Ichihara does not suggest and teaches away from using the invention

as recited in claims 1, 5 and 20.

Additionally, while the Examiner asserts on page 7 of the Office Action that col. 6, lines 52-57 suggests adjusting the power level Pc1 to be Pa such that the power levels of the first pulse of the recording pattern has a same level as a first one of the erase pattern. As a point of clarification, while not labeled in FIG. 1B or specifically discussed in the specification, a first one of the recording pulses has a level which is below the power level Pc1 (and appears to be Pc), and increases into a second pulse having a level of Pa. As such, the power level of the first recording pulse is shown as less than the first pulse of the erase signal having the power level Pc1.

Further, as shown in FIG. 4, where the Pc power level was used in the pulse as using the erase pattern of FIG. 1C, there was a delay in the erasure mark start as shown by profile B that leads to the failure to erase problem shown in FIG. 1E.

Therefore, even assuming different power levels can be used for Pc1 and can be up to Pa, it is respectfully submitted Ichihara does not suggest and teaches away from using the first pulse of the recording pattern. Thus, Ichihara does not suggest, among other features, that "the power of the first one of the multi-pulses of the erase pattern is equal to the power of the first one of the multi-pulses of the another recording pattern" as recited in claim 10.

As a general matter, in order to establish a prima facie obviousness rejection, the Examiner needs to provide both the existence of individual elements corresponding to the recited limitations, and a motivation to combine the individual elements in order to create the recited invention. Both the individual elements and the motivation need to be shown to have existed in the prior art. Should the Examiner fail to provide evidence that either one of the individual elements or the motivation does not exist in the prior art, then the Examiner has not provided sufficient evidence to maintain a prima facie obviousness rejection of the claim. MPEP 2143.03. Thus, the burden is initially on the Examiner to provide evidence as to why one of ordinary skill in the art would have been motivated to combine the individual elements to create the recited invention, and to demonstrate that this evidence existed in the prior art. MPEP 2143.01.

As an example, MPEP 2143.01 refers to In re Kotzab, 55 USPQ2d 1313 (Fed. Cir. 2000). In In re Kotzab, the Federal Circuit agreed with the Patent Office and the Examiner that the prior art, as a whole, disclosed each of the individual elements of the recited invention, which was an injection molding machine. However, the Federal Circuit held that "a rejection [for obviousness] cannot be predicated on the mere identification in [one of the prior art references] of individual

components of the claimed limitations." Instead, the Federal Circuit held that "particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *Id.* at 1317. As such, in order to establish a prima facie obviousness rejection of a claim, the Examiner needs to both provide this particular evidence of the motivation to make the combination, and show that this evidence existed in the prior art. MPEP 2143.01. Such documentation is required in order provide evidence of record. *C.f., In re Zurko*, 59 USPQ2d 1693 (Fed. Cir. 2001) (no evidence in the prior art disclosing that the combination would have been "basic knowledge" or "common sense," and that the Board "must point to concrete evidence in the record to support these findings.") It is respectfully submitted that, even assuming *arguendo* that Ichihara suggests using other power levels for the shown pulse in FIG. 1B, Ichihara does not suggest altering the overall erasure pattern shown in FIG. 1B such that there remains insufficient evidence as to why one skilled in the art would alter the pattern shown in FIG. 1B of Ichihara in a manner required to meet the features of the recited invention.

Indeed, the Examiner's suggestion in regards to at least claim 1 requires a complete reversal of the pattern shown in FIG. 1B, which would appear to adversely affect the desired temperature profile C shown in FIG. 4 by delaying the growth of nuclei and otherwise shifting the profile C in a manner not suggested by Ichihara.

Lastly, while not labeled in FIG. 1B or specifically discussed in the specification, a pulse before a first one of the recording pulses has a level which is below the power level Pc1 (and appears to be Pc) and is above a level of the power level Pc2, and increases into a second pulse having a level of Pa. As such, the power level of this pulse is shown as less than the first pulse of the erase signal having the power level Pc1 and more than the power level Pc2 of the erase signal. In contrast, claim 1 recites, among other features, that "a power level of a leading one of the second pulses of the erase pattern is a low level of the second multi-pulse and a power level of a pulse between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is a high level of the second multi-pulse." Similarly, claim 5 recites, among other features, that "a power level of a leading pulse of the erase pattern is a low level of the multi-pulse and a power level of a pulse between an end point of the erase pattern and a start point of the recording pattern is a high level of the multi-pulse" and claim 20 recites that "a power level of a leading second pulse of the erase pattern is set to be a low level of the second multi-pulse and a power level pulse between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is set to be a low level of the second multi-pulse." Thus, Ichihara further does not disclose at least this

feature of claims 1, 5 and 20.

As such, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 1-5, 9-14, 16-18 and 20 under 35 U.S.C. §103 under Ichihara.

On page 10 of the Office Action, the Examiner rejects claim 6 under 35 U.S.C. §103(a) over Ichihara in view of Ushiyama et al. (U.S. Patent Publication No. 2002/0176338). The rejection is traversed and reconsideration is respectfully requested.

The Examiner relies upon Ichihara as disclosing an erase pattern with a space formed by erase pulses, but admits that Ichihara does not suggest a first one of the recording pulses being altered according to a property of a last one of the erase pulses. However, the Examiner relies upon Ushiyama et al. as teaching using a first recording pulse optimized according to the property of a space in front of the recording pattern as described in paragraph 0049.

By way of review, Ushiyama et al. teaches determining optimum first and last recording pulse widths in response to a length of the resulting space before/after the recording mark. As shown in FIG. 7, for each pattern 1, 2 of a space and mark, the optimized width is where the jitter is at a minimum. However, other than using the entire space length to determine an optimal pulse width for the specific pattern, Ushiyama et al. does not suggest that components of the space should be used.

Further, while Ichihara teaches forming erasures of specific lengths using multiple pulses, there is no suggestion that the widths of the individual pulses in the erase pattern are affected by the change in erasure length as opposed to reducing or increasing the number of pulses used to create the appropriate erasure length. Thus, the properties of the pulses themselves are independent of erasure length. As such, even assuming arguendo that the combination is proper, the combination teaches adjusting a width of the pulses of Ushiyama et al. according to an overall erasure length for an erasure created using the pulses having levels Pc1, Pc2 of Ichihara, where the pulses have constant properties regardless of the erasure length.

Since Ushiyama et al. is not relied upon as disclosing such a feature, it is respectfully submitted that there is insufficient evidence that the combination discloses, among other features, that "the generating unit adjusts a pulse of the recording pattern according to a pulse of the multi-pulse of the erase pattern" as recited in claim 6.

On pages 10-11 of the Office Action, the Examiner rejects claims 7-8 under 35 U.S.C. §103(a) over Ichihara in view of Clark et al. (U.S. 5,802,031). The rejection is respectfully

traversed and reconsideration is requested.

As a point of clarification, claim 7 has been amended to recite, among other features, "a first one of the second pulses for the erase pattern being at the low level." As noted above in relation to the rejections of claims 1, 5, and 20, Ichihara does not disclose or suggest a first pulse being a lowest one of the Pc1, Pc2 power levels. As such, even assuming arguendo that the Examiner's characterization of Clark et al. is correct, the Examiner does not rely upon Clark et al. as curing the above-noted deficiency of Ichihara as applied to claim 6 or of claims 1, 5, and 20. As such, it is respectfully submitted that the combination does not suggest the features of claim 7.

For at least similar reasons, it is respectfully submitted that the combination does not suggest the features of claim 8.

In the Office Action at pages 11-12, the Examiner rejects claim 15 under 35 U.S.C. §103 in view of Ichihara and Tanaka et al. (U.S. Patent No. 5,825,742). The rejection is respectfully traversed and reconsideration is requested.

Even assuming arguendo that the Examiner's characterization of Tanaka et al. is correct, the Examiner does not rely upon Tanaka et al. as curing the above-noted deficiency of Ichihara as applied to claim 1, from which claim 15 depends. As such, it is respectfully submitted that the combination does not suggest the features of claim 15.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited. Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

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If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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